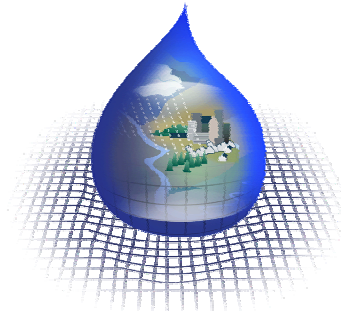


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## **Water Quality Analysis Simulation Program (WASP6.1) Workshop**

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WASP6 is an enhanced Windows version of the USEPA Water Quality Analysis Simulation Program (WASP). WASP6 has been developed to aid modelers in the implementation of WASP. WASP6 has features including a pre-processor, a rapid data processor, and a graphical post-processor that enable the modeler to run WASP more quickly and easily and evaluate model results both numerically and graphically. With WASP6, model execution can be performed up to ten times

faster than the previous USEPA DOS version of WASP. Nonetheless, WASP6 uses the same algorithms to solve water quality problems as those used in the DOS version of WASP.

WASP6 is used routinely throughout the United States in the development TMDLs and waste load allocations. The model contains algorithms for conducting: 1) Eutrophication/Conventional Pollutants, 2) Organic Chemicals/Simple Metals, 3) Mercury, 4) Temperature, Fecal Coliforms, Conservative Pollutants.

WASP6 contains 1) a user-friendly Windows-based interface, 2) a pre-processor to assist modelers in the processing of data into a format that can be used in WASP, 3) high-speed WASP eutrophication and organic chemical model processors, and 4) a graphical post-processor for the viewing of WASP results and comparison to observed field data.

### **Dates, Locations, and Logistics**

Updated information about these workshops can be found at the Watershed and Water Quality Modeling Technical Support Center webpage ([www.epa.gov/athens/wwqtsc](http://www.epa.gov/athens/wwqtsc)). These training sessions will be free and offered at different localities across the United States. We are planning on having approximately 50 people in a class. Participants attending a WASP training course will be required to have a laptop computer or share a computer with someone. The laptop computer will be used for running the model and viewing the course materials. Each participant will be required to download the model and course material prior to attending the workshop. If you are interested in attending one of these workshops please contact [Tim Wool](mailto:wool.tim@epa.gov) at [wool.tim@epa.gov](mailto:wool.tim@epa.gov) or the course coordinator listed in the table.

<b>Dates</b>	<b>Location</b>
June 21-25, 2004	EPA Region 4 Atlanta Federal Center 61 Forsyth St. SW Atlanta, GA
Summer	New England or Southwest US

### **Instructors:**

**Tim Wool** – is with US EPA ORD-NERL/ERD-Athens and is the Director of the Watershed and Water Quality Technical Support Center. Tim has over 18 years experience in the development and application of WASP. Tim routinely uses WASP for the development of TMDLs.

**Robert Ambrose** – is with EPA ORD-NERL/ERD-Athens in the Processes and Modeling Branch. Bob has over 22 years experience in the development and application of WASP.

**Earl Hayter --** is with EPA ORD-NERL/ERD-Athens in the Regulatory Support Branch. Earl has vast experience with hydrodynamics and sediment transport.

### **How to Register**

If you are interested in attending one of these workshops please send e-mail to Tim Wool ([wool.tim@epa.gov](mailto:wool.tim@epa.gov)). There is no charge for the workshop; attendees are responsible for their travel and lodging. A list of local hotels will be e-mailed to you once you register.

### **Information for Atlanta WASP Course**

The WASP Course will be held at the Atlanta Federal Center (EPA Region 4) for information about hotels and travel arrangements visit their webpage at:

<http://www.epa.gov/region4/about/visitors.html>

### **Agenda (Subject to Change)**

#### **Monday – Registration/Introduction to Hydrodynamics EFDC**

- 12:00 – 1:00
  - Course Registration
- 1:00 – 3:00
  - Introduction to Hydrodynamics
  - Hydraulics/Hydrodynamics in Streams & Rivers
  - Hydrodynamics in Estuaries
- 3:00 – 3:15
  - Break
- 3:15 – 5:00
  - Data Requirements

- Illustrative Examples
  - One Dimensional
  - Two Dimensional
  - Three Dimensional
- Issues Linking Hydrodynamic Models with WASP

## Tuesday -- Introduction to WASP

- 8:30 – 10:00
  - Introduction to Modeling with WASP
  - Model Segmentation
  - Loads and Boundaries
- 10:00 – 10:15
  - Break
- 10:15-12:00
  - Advection
  - Dispersion
  - Sediment/Particulate Transport
- 12:00 – 1:15
  - Lunch
- 1:15 – 5:00
  - Overview of the WASP6 Modeling Environment
  - Development of a Conventional Pollutant Riverine TMDL
    - Model Segmentation
    - Flow Determination
    - Water Quality Boundary Conditions

## Wednesday – Eutrophication

- 8:30 – 10:00
  - Introduction to Eutrophication
  - DO-BOD Interactions
- 10:00 – 10:15
  - Break
- 10:15 – 12:00
  - Algal Growth Kinetics
  - Eutrophication & Complex Nutrient Cycling
- 12:00 – 1:15
  - Lunch
- 1:15 – 5:00
  - Continued Hands-On TMDL Development
    - Dissolved Oxygen
    - Nutrient Enrichment
    - Others?

## Thursday – Toxicants

- 8:30 – 10:00
  - Introduction to Toxicants
  - Sorption

- Photolysis
  - Volatilization
- 10:00 – 10:15
  - Break
- 10:15-12:00
  - Biodegradation
  - Ionization
  - Hydrolysis
  - Reaction Products
  - Issues Relating to Bioaccumulation
- 12:00 – 1:15
  - Lunch
- 1:15 – 5:00
  - Illustrative Examples
    - Mercury Cycling
    - Ammonia Toxicity
  - Hands-on Experience

#### **Friday – TMDL Development**

- 8:30 – 12:00
  - Continued Hands-On TMDL Development
  - Site Specific Application Questions for using WASP in TMDL Development
    - Participants are invited to bring data to develop WASP input datasets.